Deseret Chemical Depot
Attachment 12
Container Management

Container Management

1.0 **General** [R315-8-9.1 through 9.10; 40 Code of Federal Regulations (CFR) § 264.1201(a)(2)])] Reference Module III.B.1.a. for permitted waste codes.

1.1 The Deseret Chemical Depot (DCD) stores and maintains waste chemical agent in munitions and ton containers, operationally derived agent-related wastes, and non-agent-related wastes derived from support activities. Attachments 12 (Container Management) and 13 (Management of Waste Piles), of this permit application describe the management practices and storage facilities at DCD. Because the U.S. Environmental Protection Agency (USEPA) has authorized the Utah State Resource Conservation and Recovery Act (RCRA) program, the State of Utah has primacy as implemented through the Utah Solid and Hazardous Waste Act (USHWA). Utah Hazardous Waste Rules and federal RCRA regulations regulate DCD hazardous waste management practices.

1.2 Hazardous waste generated at Tooele Chemical Agent Disposal Facility (TOCDF) or at the Chemical Agent Munitions Disposal System (CAMDS) facility will be stored and managed under the TOCDF or CAMDS RCRA permits. DCD is responsible for the storage of munitions and ton containers pending demilitarization, transportation of munitions and ton containers and other wastes to the onsite disposal facilities, and acceptance of rejected munitions for storage pending reprocessing.

1.3 A complete listing of waste streams is provided in Attachment 1 (Waste Analysis Plan).

1.4 DCD stores a variety of hazardous wastes in containers, divided into two broad categories: agent-related wastes and non-agent-related wastes. Agent-related wastes include chemical munitions that the Army has declared obsolete or has categorized as waste; overpacked, leaking chemical munitions; ton containers containing VX drained from M55 rockets; ton containers containing hydrolyzed VX; and secondary wastes derived from chemical munitions operations. Agent-related wastes are stored only in permitted storage units, most of which are located in the Area 10 and Area 2 storage facilities. Permitted storage igloos are used for storage of overpacked waste chemical agent munitions, ton containers managed as hazardous waste, agent-related secondary waste, and non-agent hazardous wastes. Buildings 1825 and 1835, located inside Area 10, and other storage units are used to store agent-related secondary waste and non agent-related hazardous wastes.

1.5 Containerized agent-related and non-agent-related wastes without free liquids are stored in Building 4536. Building 4107 and the ventilated vault in Building 4553 store agent-related and non-agent related wastes with and without free liquid in containers. Waste pile storage is also contained in Building 4107. Non-agent-related hazardous wastes generated by support activities are stored in 90-day storage areas, and then are shipped to a licensed Treatment, Storage, and Disposal Facility (TSDF).

1.6 Containers used to store hazardous waste in the DCD Storage Areas include any portable device in which material is stored, transported, treated, disposed of, or otherwise handled, as defined in R315-1-1 and 40 CFR § 260.10. Examples of containers used in permitted storage facilities include: munition bodies, spray tanks, ton containers, overpacks, and other Department of Transportation (DOT)-approved containers listed in Section 2 of this Attachment.

1.7 DCD maintains a written inventory of hazardous waste in storage. The inventory is updated when a new waste is generated or existing waste is disposed of. It contains information about the quantity and location of hazardous wastes stored in permitted storage units.

2.0 Containers with Free Liquids [R315-8-9.6]

2.1 Waste containers with free liquids managed in DCD storage facilities may include: munitions declared waste by the Army; overpacked, leaking munitions; ton containers of mustard undergoing temperature conditioning; ton containers of VX; containers holding agent-related secondary waste, and other hazardous wastes. Munitions that contain free liquids and are waste because they have leaked and are no longer serviceable may include:

2.1.1 105 mm Howitzer cartridges (M360 and M60);
2.1.2 105 mm Howitzer projectiles (M360);
2.1.3 4.2 inch Mortars (M2/M2A1);
2.1.4 155 mm Howitzer projectiles (M121A1, M121, M104, M110, M122);
2.1.5 Mines (M23); and
2.1.6 Spray Tanks (TMU-28/B).

2.2 Some waste munitions are stored in shipping tubes. Other waste munitions, with the exception of ton containers may be stored in approved overpack containers. Bulk agent waste may be stored in 170-gallon ton containers.

2.3 Agent-related secondary waste containing free liquids derived from munition and ton container maintenance activities may be stored in approved containers of various sizes in permitted storage areas. Non-agent-related hazardous wastes will be stored in DOT-approved containers in appropriate storage areas.

3.0 Description of Containers [R315-8-9.2 and 9.3, R315-3-2.6]

3.1 Waste Chemical Munitions

3.2 Waste chemical munitions are managed in accordance with applicable federal and state regulations, as well as local Army Standing Operating Procedures (SOPs). In most instances, the munition body acts as the container for the chemical agent contained within. In addition, three types of containers designed specifically for bulk chemical agents and chemical munitions are used at DCD: the 340-gallon Single Pallet Only Rocket Transporter (SPORT); 5-, 9-, and 9.25-gallon PIGs; and the 170-gallon ton container.

3.3 Of the current munition inventory at DCD, only overpacked, leaking munitions and munitions declared waste by the Army's Designated Disposition Authority (DDA) are hazardous wastes. The official inventory for permitted storage units is maintained in a database. Inventory changes for munition wastes are captured on Magazine Data Cards, which contain the most current information on munition location and quantities.

3.4 Leaking munitions are chemical munitions that have developed a vapor leak or, more infrequently, a liquid leak. Leaking munitions are overpacked and managed as hazardous

waste. Leakers are stored in RCRA-compliant overpack containers in permitted storage igloos. Because the munition casing has been compromised, the overpack serves as primary containment. Igloos used for overpacked leaker storage are air-monitored for the presence of leaking chemical agents on a weekly basis, and visually inspected semiannually. Leaking munitions found to be leaking prior to October 1, 1997, that were overpacked but not placed in drip pans will not be placed in drip pans unless they are found to be leaking at a subsequent date.

3.5 Table 12-1, Approved Munition Overpacks, is a current list of overpacks approved for containing leaking chemical munitions or leaking primary overpack containers. The Army frequently updates this listing as improved overpacks are developed (SB 742-1, Chapter 7, Table 7-2). All confirmed leaking munitions are packaged in primary overpack containers and transported to permitted leaker storage. These overpack containers provide primary containment for leaking munitions. Secondary overpacks provide primary containment for leaking primary overpack containers.

3.6 Primary and secondary overpacks for projectiles are listed in descending order of preference based in part upon leak test results, which generally indicate that propelling charge containers with a smaller circumference provide better agent containment at the gasket-flange interface. In the event that an overpack container develops a leak, the leaking item(s) will be repacked in a serviceable primary container, or US Army Chemical Materials Agency (CMA) Headquarters will designate a suitable secondary overpack container. It should be noted that the CNU-77/E23 has never leaked in storage. Use of overpacks other than those identified in Table 12-1 requires approval from CMA Headquarters.

Table 12-1: Approved Munition Overpacks[1]		
Item	**Primary Overpack**	**Secondary Overpack**
4.2 Inch Mortar	a. ID set M1, 8110-00-340-2006 b. Propelling Charge Containers (Prop Chg) M14A2, 8140-00-859-8017 c. Prop Chg M13A2, 8140-00-864-3221 d. Prop Chg M18A1, 8140-00-827-0510 e. Prop Chg M18A2, 8140-00-369-9118 f. Prop Chg M16A2, 8140-00-369-9120 g. Prop Chg M16A3, 8140-01-219-2277	a. 12" x 56" SRC [8140-01-375-7070] b. Prop Chg M10A4, 8410-00-891-6194 c. Prop Chg M460A2, 8140-00-891-6162 d. M-500 (Modified) 8140-01-386-5927
105mm Projectile	a. ID set M1, 8110-00-340-2006 b. Prop Chg M14A2, 8140-00-859-8017 c. Prop Chg M13A2, 8140-00-864-3221 d. Prop Chg M18A1, 8140-00-827-0510 e. Prop Chg M18A2, 8140-00-369-9118 f. Prop Chg M16A2, 8140-00-369-9120 g. Prop Chg M16A3, 8140-01-219-2277	a. 12" x 56" SRC [8140-01-375-7070] b. Prop Chg M10A4, 8410-00-891-6194 c. Prop Chg M460A2, 8140-00-891-6162 d. M-500 (Modified), 8140-01-386-5927
105mm Projectile with Cartridge Case	a. I Set M1, 8110-00-340-2006 b. Prop Chg M13A2, 8140-00-864-3221 c. Prop Chg M16A2, 8140-00-369-9120 d. Prop Chg M16A3, 8140-01-219-2277	a. 12" x 56" SRC [8140-01-375-7070] b. Prop Chg M10A4, 8410-00-891-6194 c. Prop Chg M460A2, 8140-00-891-6162 d. M-500 (Modified), 8140-01-386-5927
155mm Projectile	a. Prop Chg M16A2 [8140-00-369-9120] b. Prop Chg M16A3 [8140-01-219-2277]	12" x 56" SRC [8140-01-375-7070]
8-inch Projectiles	a. Prop Chg M10A4 [8140-00-891-6194] b. M500 (Modified) [pending approval – 8140-01-386-5927]	12" x 56" SRC [8140-01-375-7070]
M23 Mines	Original Storage Container	Secondary Steel Container (SSC)
TMU28/B Spray Tank	CNU-77/E23 Container	Not designated. Repackage in serviceable primary container.

[1] This is not a complete list. The Army will update this list, in accordance with SB 742-1, as newly approved overpacks become available and are authorized for use by the Army.

4.0 Agent-Related Waste

4.1 Containers storing waste with free liquids will conform to the DOT shipping criteria described in 49 CFR § 173.24, 173.24a, 178, and 179. Containers will be selected for each type of waste in accordance with the Hazardous Materials Table in 49 CFR § 172.101. DCD uses DOT approved containers that hold 1-*120* (500) gallons.

4.2 Containers used to store agent-related waste without free liquids (e.g., contaminated Personal Protective Equipment [PPE], dunnage) are described in Section 3.b of this Attachment.

5.0 Non-Agent-Related Waste

5.1 DCD uses DOT approved containers holding from 1-120 gallons for storing non-agent-related free liquids in onsite storage facilities.. Other containers specified in the Hazardous Materials Table (49 CFR § 172.101) may also be used.

6.0 Container Management Practices [R315-8-9, R315-3-2.5(b)(5)]

6.1 Hazardous waste storage requires many different management practices to ensure safe operations and protection of the environment. Local SOPs describe procedures for packaging agent-related waste, and the DCD Hazardous Waste Management Plan (HWMP) describes procedures for non-agent-related hazardous wastes, labeling containers, and performing waste inventories. Other management practices related to waste chemical munition storage and handling are provided in the current Department of Defense Explosives Safety Board (DDESB) storage standards. Containerized hazardous wastes are managed according to R315-8-9.

6.2 The DCD property line is well over the required minimum 50-foot distance from the nearest permitted storage building or igloo, so ignitable or reactive waste may be stored in these facilities in compliance with R315-8-9.7. Reactive wastes stored in permitted storage igloos include explosive and propellant munition components.

6.3 An operating record will be maintained for the life of the facility that specifies the location of each waste container and correlates waste analysis results to waste containers, as required in 40 CFR § 264.73. The contents of leaking or damaged containers will be repackaged in RCRA-compliant containers. Headspace will be left in all containers storing volatile liquid to avoid damage caused by expansion or contraction of wastes because of temperature changes.

7.0 Waste Chemical Munitions and Ton Containers

7.1 Container management activities in permitted storage igloos include air monitoring for leak detection, visual inspections, labeling and inventorying containers in use, and overpacking leaking containers.

7.2 No igloo storing chemical munitions will exceed the design and DDESB-designated quantities (net explosive weight) for munitions stored in igloo. Munitions will be stored in accordance with approved storage drawings for orientation of items and in accordance with RCRA permit conditions.

7.3 A Materials Handling Equipment (MHE) aisle 30 inches is maintained between pallet rows within the storage igloos to facilitate inspections and movement of personnel around stacks. The MHE aisle allows movement of fire protection and decontamination equipment in case of emergencies. . Different munition lots stored in the same igloo are separated by rows or other spacing and/or are identified by tags or signs. The igloos are closed and access is limited to authorized personnel. Storage management practices require that all containers are stored on pallets and that containers are not stacked.

7.4 A hazardous waste label is placed on each container or pallet with the following information:

7.4.1 Waste stream numbers

7.4.2 Nomenclature,
7.4.3 Date of accumulation, and
7.4.4 Facility Information.

7.5 Currently, DCD performs all air monitoring and inspection according to local SOPs. Monitoring activities are optimized for agent detection. The igloos used to store M55 rockets, overpacked chemical munitions, and waste VX ton containers will be monitored through the headwall on a weekly basis using agent detection equipment. Visual inspections are also employed to detect liquid agent spills because the low vapor pressure of agent can limit detection in the vapor phase. Visual inspection of all waste chemical munition containers and ton containers is performed semiannually. New munition overpacks are inspected upon receipt, and again immediately before use if they have not been inspected within the last 90 days.

7.6 Secondary Agent-Related Waste

7.6.1 Secondary agent-related waste may be generated at DCD during chemical operations, including decontamination solutions, spent PPE, and contaminated equipment. Agent-related waste containers must always be closed except when adding or removing waste. The permitted igloos are closed and access is limited to authorize personnel. Containment features in permitted storage igloos are inspected during semiannual visual inspections.

7.7 Non-Agent-Related Waste

7.7.1 Sources of ignition or reaction, such as open flames, welding torches, hot surfaces, frictional heat, sparks, spontaneous ignition sources, and radiant heat are excluded from non-agent-related hazardous waste storage areas.

7.7.2 Primary container management activities include container inspections, labeling, inventory, and compatibility. Containers are labeled in accordance with the DCD HWMP. Labels include:

7.7.2.1 Nomenclature;
7.7.2.2 Date of accumulation;
7.7.2.3 DOT shipment label;
7.7.2.4 Facility Information; and
7.7.2.5 Waste stream numbers.

7.7.3 Container inspection schedules and log sheets for documenting the inspections are presented in Attachment 2. Containers and spill equipment will be inspected weekly as described in Attachment 2, and the results will be noted on inspection forms. If significant deterioration of a container is observed or a ruptured container is identified, the wastes stored in the container will either be overpacked or transferred to a new container.

8.0 <u>Secondary Containment System Design and Operation</u> [R315-8-9.6, 40 CFR § 264.1201(a)]

8.1 In lieu of a conventional secondary containment system, a combination of container storage area design features, individual container storage apparatuses, igloo and

individual munition monitoring procedures, and procedures to prevent hazards are used to contain any potential releases from waste chemical munition storage units.

8.2 Igloo Headwall Monitoring

8.2.1 Headwall monitoring of the air inside igloos storing waste chemical munitions ensures that any released liquids or vapors are promptly detected to prevent the release of chemical agent to the environment. This program consists of sampling the air inside of igloos storing waste munitions through sample ports located in the headwall (the front wall) of each igloo.

8.3 Secondary Containment

8.3.1 Drip pans provide secondary containment for containerized hazardous wastes containing free liquids. These drip pans conform to the secondary containment volume requirements found in R315-8-9.6. The following is a description of storage configurations used in the chemical munition igloos (not including the igloo storing P999 hazardous waste in ton containers) storing hazardous wastes from the maintenance of the chemical stockpile.

8.3.1.1 Containers will be stored on pallets unless the design of the container incorporates skids to elevate it above the storage base or the containers upon which it may be stacked. Each pallet will have no more than four, 55-gallon drums, or the equivalent volume of four, 55-gallon drums. The containers in storage are placed so they can be easily inspected on all sides to ensure the containers are sound and there are no leaks.

8.3.1.2 55-gallon drums will be stacked no more than two high and SPORTs will be stacked no more than two high.

8.3.1.3 The maximum number of rows per igloo side is 12 (i.e., 24 rows per igloo). The maximum number of pallets per row is four (2 stacks, each 2 pallets high), and the maximum number of 55-gallon containers per row is 16 or the equivalent volume of 16, 55-gallon drums if containers with different volumes are used.

8.3.1.4 Containers of hazardous wastes with free liquids will be placed in secondary containment drip pans if the container is the primary container for the waste. This includes, at a minimum, all 55-gallon drums without removable heads. All other containers storing liquid hazardous waste will be provided with secondary containment, either by drip pans or storage unit base design.

8.3.1.5 SPORTs, SRCs, and 85-gallon drums used to overpack wastes with free liquids that are held in a primary container will not be placed in secondary containment drip pans, since the SPORT, SRC, or 85-gallon drum itself is being used to provide secondary containment.

8.3.1.6 Ton containers with waste P999 chemical agent that is stored in the same igloo as usable product do not use drip pans as secondary containment . These containers are stored in the same storage arrangement as other ton containers storing usable product. All other ton containers storing liquid hazardous waste will be provided with secondary containment, either by drip pans or storage unit base design.

8.3.1.7 No more than 16, 55-gallon drums will be stored in each drip pan (i.e. one drip pan per row).

8.3.2 There are several sizes of drip pans employed for secondary containment. The nominal dimensions for each drip pan size are listed below, as well as an evaluation of the total combined volume of containers allowed to be stored on each size.

8.3.3 *54" x 106" x 3"* - The total volume of this drip pan is 74.3 gallons. When a pallet is placed inside the drip pan, the volume available for secondary containment is reduced slightly. The dimensions of a pallet are 36" x 30" x 6", and the wooden slats are one inch thick. Assuming the void space(s) between each horizontal slat is roughly equal to the volume of the vertical slats, and noting that only the bottom half of the pallet will reside within the volume of the drip pan, the volume displaced by the pallet is 36" x 30" x 1" = 4.7 gallons. The available volume for secondary containment is: 74.3 – 4.7 = 69.6 gallons. Therefore, the largest container allowable for this size drip pan is 69 gallons, and the maximum combined volume of containers is 690 gallons.

8.3.4 *120" x 60" x 8"* - The total volume of this drip pan is 249 gallons. When used to store ton containers, no pallets are needed since the drip pan is constructed with metal supports for the ton container to rest on, so the total available secondary containment volume is 249 gallons. When used for storage of any other sized container, the total available volume is 249 gallons less the displaced pallet volume of 4.7 gallons (as calculated above), thus equaling 244 gallons. Therefore, the largest container allowable for this size drip pan is 244 gallons, and maximum combined volume of containers is 2,440 gallons.

8.3.5 *53" x 105" x 3"* - The total volume of this drip pan is 72.3 gallons. When a pallet is placed inside the drip pan, the volume available for secondary containment is reduced slightly. The dimensions of a pallet are 36" x 30" x 6", and the wooden slats are one inch thick. Assuming the void space(s) between each horizontal slat is roughly equal to the volume of the vertical slats, and noting that only the bottom half of the pallet will reside within the volume of the drip pan, the volume displaced by the pallet is: 36" x 30" x 1" = 4.7 gallons. The available volume for secondary containment is: 72.3 – 4.7 = 67.6 gallons. Therefore, the largest container allowable for this size drip pan is 67 gallons, and the maximum combined volume of containers is 670 gallons.

8.3.6 *51.5" x 102" x 6.5"* - As per manufacturer specification, these pans have a containment sump capacity of 82 gallons, allowing for maximum combined volume of containers of 820 gallons. The maximum storage capacity provided by this storage configuration is 16 drums per row x 24 rows x 55 gallons/drum = 21,120 gallons, stored as 384, 55-gallon drums, or the equivalent volume of 384, 55-gallon drums if other containers are used.

8.4 Storage operations at Buildings 1825 and 1835

8.4.1 Buildings 1825 and 1835 will be used for storage of GB and VX containerized waste. The following monitoring procedures shall be followed during operations at Buildings 1825 and 1835.

8.4.2 First entry monitoring shall be conducted in accordance with DCD standard operating conditions.

8.4.3 Agent monitoring shall be conducted for GB and VX at all times that Buildings 1825 and 1835 is occupied.

8.4.4 Agent monitoring sample lines shall be less than 200 feet in length, and shall be heat traced the entire length of the line.

8.4.5 Near Real Time (NRT) monitor challenges and calibrations shall be conducted by injecting standards at the input to the sample line.

8.4.6 Challenges to NRT monitors shall be performed daily.

8.4.7 Calibration of NRT monitors shall be performed using separate standards for GB and VX.

8.4.8 The V-G conversion pads shall be changed each operating day, or after five hours of operations, whichever comes first.

8.4.9 The action level shall be 0.2 STEL.

8.4.10 The minimum flow rate through the NRT is 700 ml/min.

9.0 Requirements for the Base or Liner to Contain Liquids

9.1 Liquids will be contained inside igloos storing chemical munitions by use of drip pans or storage unit base design. The containment design and completed construction will be certified by a professional engineer that the containment system meets secondary containment requirements in accordance with 40 CFR 264.175.

10.0 Containers without Free Liquids

10.1 DCD uses DOT approved 1-120 gallon containers without free liquids, or other various RCRA-compliant containers (boxes and other bulk containers). These containers meet the criteria specified in R315-8-9 and the definition of "container" in 40 CFR § 260.10. Other containers that meet these criteria may also be used in permitted storage. For a complete list, see Section 12.0 of this attachment. Wastes without free liquids may also be stored in any permitted Hazardous Waste Management Unit (HWMU) at DCD as necessary to meet mission requirements. Without a test for free liquids, only the hazardous waste streams identified in 11.2 of this permit may be stored in containers in Building 4536.

10.2. In accordance with R315-8-9.6(c), storage areas storing containers holding only wastes without free liquids are not required to have a containment system as defined by R315-8-9.6(b), provided that there is no potential for waste container contact with precipitation. A containment system is required by Utah Hazardous Waste Rules for containers holding wastes with the waste codes F020, F021, F022, F023, F026, or F027. However, there are no containers storing waste with F020, F021, F022, F023, F026, or F027 waste codes at DCD.

11.0 Test for Free Liquids

11.1 Building 4536 is used to store hazardous waste with no free liquids, such as empty warheads, empty rocket motors, ton container valves and plugs, M441 shipping/firing tubes, and unused decontamination chemicals (powdered sodium hydroxide, and sodium and calcium carbonate).

11.2 Types of wastes stored in Building 4536 are:

11.2.1 Metal munition components and casings that have been emptied of their contents (i.e., chemical agent, explosive, and propellant charge);
11.2.2 Discarded valves and plugs from ton containers;
11.2.3 Spent activated charcoal, either in granular form, or packaged in the manufacturer's filter canisters used for the filtration of gases only;
11.2.4 Discarded dry granular/powder decontamination chemicals;
11.2.5 Discarded process equipment fabricated from metal, fiberglass, or plastic;
11.2.6 Solid debris;
11.2.7 Unused chemical warfare detector kits that contain chemically treated wipes and sample tubes, but do not contain any chemical agents (i.e. Identification kits);
11.2.8 Solid waste that was once used to package chemical agent munitions made of wood, metal, or plastic (i.e. dunnage); and
11.2.9 Glassware, rubber tubing, or paper that contains no liquids.

11.3 Other wastes, agent-related, or non-agent-related, may be stored in Building 4536 as needed to support mission activities.

12.0 Description of Containers [R315-8-9.2 and 9.3]

12.1 DCD uses DOT approved containers that hold 1-*120* (500) gallons and containers used to store hazardous wastes without free liquids include:

12.1.1 2-gallon M2A1 can;
12.1.2 8-gallon prop charge can;
12.1.3 11-gallon M548 can; and
12.1.4 Wood/fiberboard crates and boxes.

12.2 Containers are approved in accordance with 49 CFR § 173.24, 173.24a, 178, and 179. Containers will be selected for each type of waste in accordance with the Hazardous Materials Table in 49 CFR § 172.101.

13.0 Container Management Practices

13.1 Containers are kept closed while in storage, except to add or remove waste, or to perform measurements or inspections. All container lids are sealed with either threaded fasteners (open-topped drums), or nails (wooden crates). Damaged or corroded containers are overpacked in 85-gallon drums made of either polyethylene or steel. Containers in storage are inspected on a weekly basis. Inspection plans used at facilities storing waste in containers can be found in Tables 2-1 through 2-6, and Figures 2-1 through 2-4 in Attachment 2. The storage arrangements used in all permitted waste storage facilities provide for maximum storage capacity and allow for ease in material handling.

13.2 All permitted storage units at DCD are designed and operated to prevent containerized waste from coming into contact with precipitation and accumulated liquid. Therefore, containerized waste without free liquids is not required to have a containment system in accordance with R315-8-9.6(c).

14.0 Container Storage Area Drainage

14.1 Building 4536 has no provisions for drainage of liquids, because no wastes with free liquids are stored in Building 4536. Furthermore, run-on is very unlikely because of the location of the building and the dry climate of central Utah.

14.2 Building 4107 has a concrete floor, elevated approximately 2 feet above exterior grade. Low rainfall and the elevated floor minimize the potential for impacts to waste containers caused by run-on. The Building 4553 hazardous waste storage vault is completely enclosed protecting its contents from both run-on and precipitation. Chemical storage igloos have concrete floors and are elevated above exterior grade.